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Trade Names

IN ALL SCIENTIFIC journals, including the JOURNAL OF ECONOMIC ENTOMOLOGY, it is desirable that every organism, material, apparatus and environment be described in such a way that present or future readers of any contribution will know exactly what the author used in his investigation. The ideal description would make possible precise duplication of experiments or comparison of one experiment with another. Probably that ideal is never attained, but if it is kept in mind it can be approached more closely than if it is ignored or forgotten.

It seems to be most difficult for entomologists to approach the ideal in their description of substances used in their experiments on insect toxicology and chemical control. Reasonably pure compounds can be adequately described by their chemical names, from which their properties can be found in the chemical literature. But many materials that entomologists must use are not compounds but mixtures, sometimes so complex that it is impossible to analyze them satisfactorily. Proprietary materials are often complex mixtures of incompletely known composition, yet they cannot and should not be excluded from our experiments and publications because they may have great and even unique value in insect control. How then should proprietary materials be designated in publications of the JOURNAL OF ECONOMIC ENTOMOLOGY? Most desirable is a complete analysis by a competent independent chemist, with the trade name and manufacturer's name. Second best is the manufacturer's statement of composition, with the trade name. Of little or no value is the trade name alone because it may not represent a known and fixed composition of matter or combination of known materials.

The writer believes that the trade names of proprietary materials should always be given in JOURNAL publications, but in an inconspicuous manner so that the reader's attention to the scientific and economic aspects of the contribution will not be distracted by recurrence of trade names in the paper. It is particularly desirable that trade names be subordinated in contributions from commercial entomologists, lest the contributor be suspected of obtaining, and the JOURNAL of accepting, free advertising. To accomplish subordination of trade names without losing whatever value they may have for identification of materials, the writer suggests that each proprietary material mentioned in JOURNAL publications be given the best possible chemical characterization when it is first mentioned in an article and that it be named thereafter in the article by the name of its principal ingredient, by any concise appropriate name or abbreviation except the trade name, or by a symbol. The trade name and manufacturer's name would then be given only once as an unitalicized footnote to the chemical description and name adopted for use in text and tables of the paper.

For several years the writer has been interested in the chemistry of JOURNAL manuscripts. Chemical descriptions have improved markedly and it is certain that the majority of contributors are doing their best to elevate the scientific standards of the JOURNAL by emphasizing chemical descriptions of materials and by using trade names with discretion.

F. L. CAMPBELL

Further discussion of the above subject, which has seemed important to a number of members and has brought forth a diversity of suggestions, is invited. From the standpoint of the JOURNAL it seems highly desirable that a uniform practice be established and even more desirable that this practice be the one which will best serve the interest of both contributors and readers. This can be determined only through adequate consideration, in the columns of the JOURNAL and elsewhere, perhaps in a round-table discussion at an annual meeting of the Association. L. M. P.

OBITUARIES

Felix S. Puckett, 1885–1941

Word has just been received that Felix S. Puckett, Senior Administrative Officer, Division of Pink Bollworm and Thurberia Weevil Control, died suddenly at San Antonio, Texas, on July 23, 1941. He was born on March 7, 1885, in Buda, Texas. He attended the Texas A. & M. College, graduating in 1907 with the Bachelor of Science degree. He pursued graduate work at that institution the following year and became associate director of the North Carolina Experiment Station in 1910, serving for 5 years. He then became associated with an industrial concern dealing with potash, and served as the publicity agent for this firm until he became associated with the U. S. Department of Agriculture.

Since October 8, 1917, Mr. Puckett has been in continuous employment with the Department and, with the exception of a short period beginning in 1928, has been connected with work on pink bollworm eradication and control. He was in general charge of field operations carried on in cooperation with the State of Texas to eradicate the early discovered infestations of pink bollworm and was responsible for organizing and directing clean-up work. His long association with the work of pink bollworm control made him unusually well qualified to be in charge of the business operations of this project. For many years he has been the business manager of the work associated with pink bollworm control and quarantine enforcement. In 1928 he was transferred to a similar position in connection with the work on European corn borer. In 1930 he returned to the pink bollworm project.

Mr. Puckett was a conscientious and indefatigable worker and a valuable employee.—F. A. Porter

Alexandre Arsène Girault, 1884–1941

Alexandre Arsène Girault, for some years a member of this Association, died at his home in Brisbane, Queensland, Australia May 2, 1941.

Mr. Girault was born in Annapolis, Maryland January 9, 1884. After receiving the B.S. degree from the Virginia Polytechnic Institute in 1903, he was employed for a brief period by the Maryland Steel Company as a chemist, but in 1904 he became field assistant in the Federal Bureau of Entomology. After four years in this position, during which he conducted detailed biological studies on the plum curculio, theColorado potato beetle and the lesser peach borer, he accepted an assistantship in the laboratory of the State Entomologist of Illinois. From 1909 to 1911 he served as assistant in entomology at the University of Illinois, and during this period he published on insects injurious to stored products, on the results of further studies with the Colorado potato beetle, and on the biology of the bed bug.

In 1911 he left for Australia to become entomologist of the Bureau of Sugar Experiment Stations in Queensland. He had for several years been keenly interested in taxonomy, particularly in the study of the parasitic Hymenoptera, and in 1914 he returned to the United States to reenter the Bureau of Entomology as expert in the classification of the chalcid flies, with headquarters at Washington. Three years later, however, he was back in Australia, having accepted a position as assistant entomologist of the Queensland Department of Agriculture and Stock. Among his more important contributions in the field of economic entomology while in that position are a paper on the orange-tree pentatomid bug and an exhaustive study of the biology of the banana rust thrips, *Anaphothrips signipennis* (Bagnall). After 1930 he was in professional entomological employment only intermittently but he carried on privately his studies on the chalcid flies and thrips, although to the latter group he gave relatively little attention.

During most of his working years Mr. Girault was handicapped by ill health, yet he worked indefatigably, as evidenced by the large number of his publications. These total approximately 325, and include a work of about 900 pages under the title "Australian Hymenoptera Chalcidoidea," published in the Memoirs of the Queensland Museum 1912–15. Most of his papers, however, are very short, containing only brief descriptions and notes, principally on Chalcidoidea; and some were printed on a small hand press.

Because he described enormous numbers of new genera and species of chalcid flies, it was as a specialist in that group that he was best known. Nevertheless, his comparatively few papers on the biology and control of various economic insects reflect an amazing capacity for observing and recording minute biological details.—C. F. W. Muesebeck.

George A. Runner, 1876–1941

In the death of George A. Runner on July 11, the Bureau of Entomology and Plant Quarantine lost one of its oldest employees, at least from the standpoint of service. Mr. Runner was born in Ottawa County, Ohio, November 16, 1876. He spent approximately three years in college, attending Ohio Northern University at Ada, Ohio, and Southwestern Presbyterian University at Clarksville, Tennessee. From July 1907 to early 1909 he was in the employ of the Louisiana State Crop Pest Commission. On May 1, 1909, he was appointed "Agent and Expert" in the then Division of Southern Field Crops, and conducted investigations of the insects of tobacco and other crops for about eight years (with the exception of a short detail to the Federal Horticultural Board in 1914 and 1915). In May, 1917, he was transferred to the then Division of Deciduous Fruit Insects and assigned to studies of grape insects at Sandusky, Ohio, which remained his station until his death. Mr. Runner was a shy, retiring individual, and rarely attended entomological meetings, but was held in high esteem by all professional workers and growers who became acquainted with him. He possessed a wealth of practical information on grape insects and their control, as well as on many other phases of grape culture, which has proved particularly valuable to the conferences held in recent years to discuss the grape insect problems of the Great Lakes region. Mr. Runner is survived by his widow, two sons and a daughter.—B. A. Porter.

PAPERS PRESENTED AT THE ANNUAL MEETING OF THE COTTON STATES BRANCH

The following papers formed a part of the program of the meeting of the Cotton States Branch of the American Association of Economic Entomologists, held at Waco, Texas, February 5, 6, 7 and 8, 1941.

Ecology and Economic Entomology. Z. P. METCALF, *Raleigh North Carolina* (Address of the Chairman of the Branch).

Boll Weevil and Cotton Aphid Control by the Use of Rotenone in Combination with Calcium Arsenate. C. F. RAINWATER and FLOYD F. BONDY, *South Carolina.*

Experiments for Control of the Cotton Aphid and the Boll Weevil in 1940. R. L. McGARR, *State College, Mississippi.*

Effect of Calcium Arsenates Containing Different Percentages of Water-Soluble Arsenic Pentoxide upon Boll Weevil, Cotton Aphids, Tarnished and Rapid Plant Bugs, and Yields. R. C. GAINES, M. T. YOUNG and G. L. GARRISON, *Tallulah, Louisiana.*

Cryolite and Cryolite-Sulphur Mixtures for Boll Weevil Control and their Effect on the Cotton Aphid. R. L. McGARR, *State College, Mississippi.*

A Factorial Experiment in which Plots were Dusted for Cotton Aphids, for Boll Weevils, or for Both. R. C. GAINES, *Tallulah, Louisiana.*

The Relation of the Moisture Content of the Cotton Plant to Oviposition by *Heliothis armigera* (Hubner), and to the Survival of Young Larvae. R. K. FLETCHER, *College Station, Texas.*

One Hundred Generations. ROY MELVIN, *Menard Texas.* (Address of the President of the Texas Entomological Society.)

A Method of Calculating the Relationship Between Calcium Arsenate Applied and Degree of Control of Boll Weevil on Sea Island Cotton. PAUL M. GILMER, *Tifton, Georgia.*

Cotton Fleahopper Tests of 1940 in Louisiana. I. J. BENEEL, *University, Louisiana.*

Insecticide Tests for Bollworm Control During 1940. J. C. GAINES, *College Station, Texas.*

Tests of Insecticides for Boll Weevil Control During 1940. J. C. GAINES, *College Station, Texas.*

Studies of Insect Damage to Cotton with Reference to Soil Conservation Practices. P. A. GLICK and K. P. EWING, *Waco, Texas.*

Spraying vs. Dusting for Boll Weevil Control. K. P. EWING, *Waco, Texas.*

The Control of the Cotton Red Spider. DWIGHT ISELY, *Fayetteville, Arkansas.*

Insecticide Tests on the Bollworm, Boll Weevil and Cotton Leafworm at Waco, Texas, in 1940. R. W. MORELAND, E. E. IVY and K. P. EWING, *Waco, Texas.*

Investigations on the Control of the Pink Bollworm with Insecticides. W. L. LOWRY, *Presidio, Texas.*

Secondary Hosts of the Pink Bollworm in the Lower Rio Grande Valley of Texas and Mexico. F. F. BIBBY and IGNACIO MORENO, *Brownsville, Texas.*

Factors Influencing the Development of Resting Pink Bollworm Larvae. M. M. HUGHS, *Presidio, Texas.*

Some Notes on Recent Developments of Pink Bollworm Control Procedure. D. M. McEACHERN, F. I. JEFFREY and J. I. COWGER, *San Antonio, Texas.*

Inspection for the Pink Bollworm in the United States. I. B. RUTLEDGE, *San Antonio, Texas.*

Injuries to New Mexico Cotton from Hemipterous Insects in 1939, 1940. J. R. EYER, *State College, New Mexico.*

Do Insects Cause Allergy in Man. P. A. GLICK, *Waco, Texas.*

The Biology of the Brown Wheat Mite. F. A. FENTON, *Stillwater, Oklahoma.*

Sterilization of Citrus Fruits in Texas as a Means of Preventing the Spread of the Mexican Fruit Fly, *Anastrepha ludens* Loew. N. O. BERRY, *Harlingen, Texas.*

The Activities of the Division of Foreign Quarantines of the Bureau of Entomology and Plant Quarantine. JOHN T. CREIGHTON, *Gainesville, Florida.* (Kodachrome Moving Picture)

A Review of Extension Entomology in Texas in 1940. CAMERON SIDDALL, *College Station, Texas.*

Rotenone, an Inherited Character in Devil's Shoestring, *Tephrosia virginica.* V. A. LITTLE, *College Station, Texas.*

Luperoides brunneus Crotch, the Corn Silk Beetle in Louisiana. C. O. EDDY, *University, Louisiana.*

Rate of Application of Derris-Talc Dusts for Pickleworm Control. F. S. ARANT, *Auburn, Alabama.*

The Ranch Management Screwworm Prevention Program of the Bureau of Entomology and Plant Quarantine. E. C. CUSHING, *Menard, Texas.*

Predisposing Causes of Screwworm Infestations in Texas with some Practical Recommendations for their Control. H. E. PARRISH, *Menard, Texas.*

The Use of Arsenicals in the Control of Housefly Larvae. D. E. HOWELL, *Stillwater, Oklahoma.*

Notes on the Reaction of the Sweet potato Weevil under Lights of Different Qualities. E. H. FLOYD, *University, Louisiana.*

On the Marriage Flight of *Pogonomyrmex comanche* Wheeler. R. W. STRANDTMANN, *College Station, Texas.*

The Control of Borers on Top-Worked Pecan Trees. W. C. PIERCE and C. B. NICKELS, *Brownwood, Texas.*

Effect of Severe Winter (1939–40) Sugarcane Borer Infestation. A. L. DUGAS, *University, Louisiana.*

STUDIES OF THE PHYSIOLOGY AND TOXICOLOGY OF BLOWFLIES

A series of seven papers published in three bulletins by the Council for Scientific and Industrial Research, Melbourne, Australia. These papers are issued as follows:

1. Lennox, F. G. 1939. The development of a synthetic medium for aseptic cultivation of larvae of *Lucilia cuprina.* Pamphlet 90, 24 p., 1 plate.
2. Lennox, F. G. 1940. The action of stomach larvicides on *Lucilia cuprina.* Pamphlet 101: 9–49.
3. Lennox, F. G. and L. G. Webber. 1940. The toxicity of some arsenicals to larvae of *Lucilia cuprina.* Pamphlet 101: 51–67.
4. Lennox, F. G. 1940. The action of contact larvicides on *Lucilia cuprina.* Pamphlet 101: 69–131.
5. Waterhouse, D. F. 1940. The hydrogen ion concentration in the alimentary canal. Pamphlet 102: 7–27.
6. Waterhouse, D. F. 1940. The absorption and distribtion of iron. Pamphlet 102: 28–50.
7. Lennox, F. G. 1940. A quantitative examination of the iron content of *Lucilia cuprina.* Pamphlet 102: 51–67.

Summaries are given at the beginning of each pamphlet.—F.L.C.

"COORDINATION OF ENTOMOLOGY WITH OTHER SUBJECT MATTER IN EXTENSION PROGRAMS"[1]

Since agricultural extension work was established on a cooperative basis of organization in the Act of 1914 and under the related memoranda of understanding, it is not surprising to find cooperation between the subject-matter departments considered equally essential in developing the recommendations and procedures for agricultural extension work. Coordination as it is considered here is merely further progress in this cooperation to make entomology as well as other subject matter more useful to farm people by bringing it to their attention in close association with their crop, livestock, and home problems.

Coordination in its most useful application as an aid to entomology extension work means harmonious adjustment of subject matter and teaching procedures between specialists and other extension workers to deal most effectively with (1) a farm problem and (2) the related county extension teaching problem. Coordination is not necessary where the problem is so simple or so well understood by the farmer as to enable him to properly coordinate the subject matter; nor is a high degree of coordination desirable where the application of the technique is in an introductory stage, not to be entrusted readily to use by farmers. Coordination is recommended to go beyond comparatively simple cooperative efforts, however, where a sequence of various specialists' recommendations are required in such a farm and home undertaking as the Live-at-Home program. Any program of proven worth, which is not "going over," may be examined with profit to see if lack of coordination in either subject-matter or extension teaching procedures has broken the chain of scientific service to the farm or to the rural population.

Extension entomologists have gone far in cooperative work. Mr. T. H. Parks, in "A Study of Extension Projects in Entomology," U.S.D.A. Extension Service Circular No. 318, says "The successful extension entomologist has for his goal establishment of improved practices, regardless of who gets the credit. With this goal in mind, he will soon be working with and through other college departments and agencies capable of extending his teachings." Of twenty-one States reporting in this study, eighteen reported cooperation with home economics, seventeen with animal industry, sixteen with horticulture, and lesser numbers with six other college departments, as might be expected.

Cooperation with seventeen agencies was analyzed under three categories—commercial, educational, and social—in each of which cooperative effort was very favorably reported. Obviously then, extension entomologists do not consider coordination as new, but rather as an essential element in cooperation to bring entomology into greater appreciation and use among farm people.

Coordination is not merely combination. Combination might afford no benefit, as the farmer may need direct advice of a highly specialized order rather than general information in which only elementary advice or partial answers to acute questions can be supplied. Mr. J. O. Pepper, Extension Entomologist in Pennsylvania, cited experience with potato production as a very good example. In an effort to serve the requests of farmers and county agents with extension subject matter on a better basis than the agronomists, entomologists, marketing and other specialists had previously provided to potato growers, a potato specialist was employed. However, without reflection on the qualifications or work of this specialist, deficiencies in the program were still apparent.

Arrangements were then perfected for coordination of subject-matter specialists' activities relating to potato production, and the resultant state program of county activities, involving the use of all the specialists directly concerned, met with cordial acceptance and appreciation by farmers and county agents. Naturally the various specialists concerned were also gratified by the results because the coordination simplified the teaching problem of each specialist as well as that of county agents and increased its effectiveness.

In programs covering a sequence of various seasonal activities, such as the Live-at-Home program, special devices may be provided by coordination, such as schedule calendars displayed conveniently for reference in farm homes, which remind people to perform the complicated steps of a home food production program on time and cite bulletins and other sources of instruction. Similar calendars scheduling the county and local extension activities connected with the program, especially those involving aid from specialists on any of the varied aspects of the program, will serve to coordinate the organized efforts of state and county extension workers with the cooperative effort of farm people and local commercial cooperators.

Three additional categories for coordination are worthy of mention beyond the scope of this topic. Mr. Dibble, Chairman of this Section of Extension, mentioned one: Defense, which requires attention at present, and with this we would probably associate the relation of extension entomology work to control programs of the Bureau of Entomology and Plant Quarantine and State offices of entomology. The second is "Land Use Planning," in which entomology can contribute to health and to the success of all of the action agency aids to improve social and economic conditions among rural people The third is coordination of effort among extension entomologists, especially in adjacent States, to utilize most efficiently planning initiative and the production of teaching materials, literature, and exhibits. Various regional conferences (such as the Northwest Crop Improvement and Protection Conferences held in Minneapolis, and the Grape Berry Moth Conference for the States bordering Lake Erie) aim in that direction but could become more productive of the exchange of materials if greater attention were given this phase of the work.

All of the coordination proposed is such as specialists would develop coordinately for mutual advantage to make their services of the greatest practical use to farm people.

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[1] Summary of a panel discussion by T. H. Parks, J. O. Pepper, C. B. Dibble, J. A. Evans, and S. P. Lyle at the meeting of the Section of Extension, American Association of Economic Entomologists, December 28, 1940.

BIBLIOGRAPHY OF ENTOMOLOGICAL PUBLICATIONS OF CHARLES WILLIAM WOODWORTH

This list of the most important contributions of Prof. Charles William Woodworth has been prepared especially for the JOURNAL OF ECONOMIC ENTOMOLOGY as a convenience for the members of the Association of Economic Entomologists and as a tribute to our deserving and deceased charter member.

1887. Jassidae of Illinois. Ill. State Lab. Nat. Hist. **3**: 9–33.
1888. Synopsis of North American Cicadidae. Psyche **5**: 67–8.
1888. On the genus Cicadula Zett. Psyche **5**: 75–6.
1889. North American Typhlocybini. Psyche **5**: 211–4.
1889. Studies on the embryological development of *Euranessa antiopa*. *In* Scudder's "Butterflies of the Eastern United States and Canada." Pages 95–104.
1889. Venation of the wings of Coleoptera. Psyche **5**: 282.
1889. Entomological Notes. Ark. Agr. Expt. Sta. Bul. **10**: 1–18.
1890. The effects of the arsenites upon plants. Ark. Agr. Expt. Sta. Bul. **14**: 1–14.
1891. On the relation between scientific and economic entomology. Psyche **6**: 19–21.
1891. Spray and band treatment for codling moth. Calif. Agr. Expt. Sta. Rept. **1890**: 308–11.
1892. Root knots on fruit trees and vines. Calif. Agr. Expt. Sta. Bul. **99**: 1–4.
1892. A laboratory of plant diseases. Science **20**: 517.
1892. A synopsis of the families of insects. Calif. Agr. Expt. Sta. Rept. **1891–2**: 271–314.
1895. The Entomologists Daily Post Card. A California Journal of Entomology. Nos. 1–118.
1896. Remedies for insects and fungi. Calif. Agr. Agr. Expt. Sta. Bul. **115**: 1–16.
1897. The California vine hopper. Calif. Agr. Expt. Sta. Bul. **116**: 1–14.
1899. Paris green for the codling moth. Calif. Agr. Expt. Sta. Bul. **126**: 1–40.
1899. Orchard fumigation. Calif. Agr. Exp. Sta. Bul. **122**: 1–33.
1900. Butterflies. Calif. Agr. Expt. Stat. Nature Study Buls. 1–40.
1901. Note on the respiration of *Aleurodes citri*. Can. Ent. **33**: 173–6.
1902. Orange and lemon rot. Calif. Agr. Expt. Sta. Bul. **139**: 1–12.
1902. Grasshoppers in California. Calif. Agr. Expt. Sta. Bul. **142**: 1–36.
1902. The California peach-tree borer. Calif. Agr. Expt. Sta. Bul. **143**: 1–15.
1902. The red spider of citrus trees. Calif. Agr. Expt. Sta. Bul. **145**: 1–19.
1903. Key to the Orthoptera of California. Pub. by Author, Berkeley, Calif. Pp. 1–30.
1903. Key to Coccidae of California. Pub. by Author, Berkeley, Calif. Pp. 29–42.
1903. Fumigation dosage. Calif. Agr. Expt. Sta. Bul. **152**: 1–17.
1903. Remedies for insects. Calif. Agr. Expt. Sta. Circ. **7**: 1–19.
1903. A list of the insects of California, with synopses, bibliography, and synonymy. Pub. by Author, Berkeley, Calif. Pp. 1–80.
1904. Cooperative work in economic entomology. U. S. Dept. Agr. Office Expt. Sta. Bul. **142**: 186–9.
1904. Fumigation practice. Calif. Agr. Expt. Sta. Circ. **11**: 1–27.
1904. Directions for spraying for the codling-moth. Calif. Agr. Expt. Sta. Bul. **155**: 1–20.
1904. Reading course in economic entomology. Calif. Agr. Expt. Sta. Circ. **10**: 1–18.
1904. Silk Culture. Calif. Agr. Exp. Sta. Circ. **12**; 1–6.
1906. Proposed insecticide law. Calif. Agr. Expt. Sta. Bul. **182**: 184–6.
1906. Wing veins of insects. Univ. Calif. Pub. Tech. Ser. Ent. **1**: 1–152. (This paper was originally prepared under the direction of E. L. Mark for a higher degree at Harvard.)
1906. Caterpillars on oaks. Calif. Agr. Expt. Sta. Circ. **18**: 1–4.
1907. White fly in California. Calif. Agr. Expt. Sta. Circ. **30**: 1–16.
1907. White fly eradication. Calif. Agr. Expt. Sta. Circ. **32**: 1–15.
1907. The California tussock moth. Calif. Agr. Expt. Sta. Bul. **183**: 191–214.
1908. The leg tendons of insects. Am. Nat. **42**: 452–6.
1908. Argentine ant in California. Calif. Agr. Expt. Sta. Circ. **38**: 1–11.
1909. Synopsis of the families of insects inhabiting California. Univ. Calif. Syllabus Ser. 12 pp.
1910. The control of the Argentine ant. Calif. Agr. Expt. Sta. Bul. **207**: 53–82.
1911. California insecticide law. Calif. Agr. Expt. Sta. Circ. **65**: 1–23.
1911. Fumigation Studies No. 5. Dosage tables. Calif. Agr. Expt. Sta. Bul. **220**: 1–33.
1911. Leakage of fumigation tents. JOUR. ECON. ENT. **4**: 376–80.
1912. Fumigation studies No. 6. A new leakage gauge. Calif. Agr. Expt. Sta. Circ. **75**: 1–15.
1913. Codling moth control in the Sacramento Valley. Calif. Agr. Expt. Sta. Circ. **101**: 1–4.
1913. The woolly aphis. Calif. Agr. Expt. Sta. Circ **102**: 1–4.
1913. The amended insecticide law. Calif. Agr. Expt. Sta. Circ. **104**: 1–10.
1913. Guide to California insects. Published by Author (Law Press), Berkeley, Calif. Pp. 1–360. (Preparation of material, linotyping and press work by the author.)
1914. A new self-regulating paraffin bath. Univ. Calif. Pub. in Zool. **13**: 39–42.
1914. Silk worm Experiments. Calif. Agr. Expt. Sta. Circ. **116**: 1–4.
1915. Aphids on grain and cantaloupes. Calif. Agr. Expt. Sta. Circ. **125**: 1–4.
1915. House fumigation. Calif. Agr. Expt. Sta. Circ. **127**: 1–4.
1915. Insecticide formulas. Calif. Agr. Expt. Sta. Circ. **128**: 1–7.
1915. The efficiency of spray machinery. Calif. Cult. **45**: 451.
1915. Fumigation studies No. 7. New dosage tables. Calif. Agr. Expt. Sta. Bul. **257**: 1–16.
1915. The toxicity of insecticides. Science **41**: 367–9.
1915. Time of fumigation. Calif. Citrograph **1**: 8.
1915. Classification of orders of insects. Ent. News **26**: 120–3.
1915. School of fumigation. Braun Corporation, Los Angeles, Calif. 1–192.
1915. Relative size in fumigation. JOUR. ECON. ENT. **8**: 302–4.

1915. Theory of toxicity. JOUR. ECON. ENT. **8**: 509–12.
1915. The rate of hatch of scale insect eggs. Can. Ent. **47**: 98–9.
1915. Quantitative entomology. Ann. Ent. Soc. Am. **8**: 373–83.
1916. A new spray nozzle. Jour. Agr. Res. **5**: 1177–82.
1916. A new descriptive formula. Ent. News **27**: 57–8.
1916. A new fundamental equation in optics. Science. n.s. **43**: 824–5.
1916. Fumigation studies no. 8. The calibration of the leakage meter. Calif. Agr. Exp. Sta. Bul. **264**: 231–4.
1919. Contribution to the optics of the microscope. Proc. Calif. Acad. Sci. 9(4): 175–96.
1923. Methods for machine calculation of rays through a lens system. Jour. Opt. Soc. Am. and Rev. Sci. Instruments **7**: 673–6.
1923. The wings of *Bombyx mori* (Lepid.: Bombycidae). Ent. News **34**: 33–6
1923. Flies and mosquitoes. Kiangsu Prov. Bur. Ent. 112 pp. (In Chinese.)
1923–4. Insect pest bulletins. Kiangsu Prov. Bur. Bur. Ent. 1(1–3): 1–90. (In English and Chinese.)
1926. Book Notice. The Insects of Australia and New Zealand by R. J. Tillyard, 1926. Pan-Pac. Ent. **3**: 195–6.
(Comments on Comstock and Tillyard systems of wing venation.)
1930. Petroleum insecticides. JOUR. ECON. ENT. **23**: 848–51.
1930. The synchronization of life histories. Pan-Pac. Ent. **6**: 189–91.
1930. The arrangement of the major orders of insects. Psyche **37**: 157–62.
1930. What is control? Science. **71**: 388.
1930. Instrucciones para combatir las plagas agricolas. Edicion Hispano-Americana. Calif. Spray Chemical Co. 25 pp. (In Spanish.)
1934. Notes on microscope theory. Trans. Sci. Soc. China. **8**: 1–7.

BIBLIOGRAPHICAL REFERENCES

Essig, E. O. 1931. Charles William Woodworth. A History of Entomology. The Macmillan Co. Pp. 800–2.

Essig, E. O. 1940–1941. Obituary, Charles William Woodworth. Science **92**: 570–2, 1940; **93**: 33, 1941.

Essig, E. O. 1941. Obituary, Charles William Woodworth. JOUR. ECON. ENT. **34**:

Hutchison, C. B., S. B. Freeborn, and H. Schacht. Science Servant of Agriculture. Rept. Agr. Expt. Sta. Univ. Calif. **1938–40,** portrait. —2-15-41.

Jeancon, H. M. 1921. C. W. Woodworth. Calif. Countryman, Dec. **10**: 18–9.

Wickson, E. J. 1921. Editorial on the work of Woodworth. Pacific Rural Press **102**: 353.

E. O. Essig, *University of California, Berkeley.*

NOTES

TOBACCO INSECT CONFERENCE AT OXFORD, NORTH CAROLINA

The fifth annual Tobacco Insect Conference was held at Oxford, N. C., July 22, 23, and 24, 1941. The conference consisted of informal round-table discussions of programs of research and extension work on tobacco insects in the various states. The conference was called to order by Chairman W. D. Reed at 9:00 A.M. on July 22 and Dr. Z. P. Metcalf extended the greetings of North Carolina to the visiting entomologists. In addition to a discussion of work programs and some special topics relating to tobacco insects, a field trip was made to the Tobacco Experiment Station to observe field plots, experimental apparatus used by the Tobacco Insect Laboratory at Oxford, and harvesting methods for tobacco.

The Tobacco Agronomy Conference and the Tobacco Disease Council met at Oxford simultaneously with the Tobacco Insect Conference. These three groups make up the Tobacco Work Conference.

On Tuesday evening at 8:00 P.M. Dr. Metcalf presented an illustrated lecture to the combined Tobacco Work Conference on the scenic beauty of the North Carolina Parkway.

One session on July 23 was devoted to a discussion of changes to be made in the recommended control measures for 1942. The Oxford community cooperated in entertaining the conference at a barbecue and picnic at the Tobacco Experiment Station. On Thursday, July 24, a field trip was made to Creedmoore and McCullers, N. C., to observe experimental work on tobacco, after which the conference adjourned.

The following were in attendance: C. F. STAHL, J. U. GILMORE, W. A. THOMAS, and J. T. CONNER, Oxford, N. C.; Z. P. METCALF, B. B. FULTON, and J. O. ROWELL, Raleigh, N. C.; L. B. REED, Washington, D. C.; H. S. MCCONNELL, College Park, Maryland; W. D. REED, C. O. BARE, and J. N. TENHET, Richmond, Va.; C. B. DOMINICK, Chatham, Va.; G. W. UNDERHILL and S. B. FENNE, Blacksburg, Va.; NORMAN ALLEN, Florence, S. C.; L. B. SCOTT and JOE NILAM, Clarksville, Tenn.; A. W. MORRILL, JR., Windsor, Conn.; F. S. CHAMBERLIN, Quincy, Fla.; and E. G. BEINHART, Philadelphia, Pa.

The program committee was composed of Z. P. METCALF, C. F. STAHL, F. S. CHAMBERLIN, THEO. L. BISSELL, W. D. REED, and S. MARCOVITCH.

W. D. REED and S. MARCOVITCH were reelected chairman and secretary, respectively, of the conference for 1942. It was voted to meet in 1942 at the Tobacco Experiment Station, Lancaster, Pa.—7-25-41.

J. T. CONNER, *Acting Secretary.*

MYRON H. SWENK

Word has been received of the death, on July 18, 1941, of Professor Myron H. Swenk of the University of Nebraska. A suitable notice of the life and activities of Professor Swenk will be published in a later issue of the JOURNAL.

GEORGE A. FICHT

George A. Ficht, for the past 14 years in charge of European corn borer investigations for the Purdue University Agricultural Experiment Station with headquarters at Auburn, Indiana, died July 29 following a heart attack.

Dr. Stanley J. Carpenter, Entomologist of the Arkansas State Board of Health, has been granted a leave of absence and has accepted a commission as a Captain in the United States Army. He is stationed at Camp Joseph T. Robinson, Little Rock Arkansas where he is assigned to the Camp Surgeon's Office and devotes his full time to mosquito investigations. A part of his work consists of the identification of mosquito specimens from other camps in the Seventh Army Corps Area.

Richard L. Doutt, a graduate student in entomology at the University of California, is now an Aviation Cadet at the Naval Air Station at Corpus Christi, Texas.

Mr. Abbott Kagan of the Oklahoma Agricultural Experiment Station is now a Flying Cadet stationed at Hunter Field, Alabama.

B. M. Heniford, a 1940 graduate of Clemson College, who has been a graduate assistant in the Department of Entomology of Purdue University, for the past year, is now in the army and is stationed at Camp Wheeler, Georgia.

Professor T. E. Hienton, of the Agricultural Engineering Department, Purdue University Agricultural Experiment Station, who has been active in cooperating with the Purdue University Department of Entomology in the study of lights as attractants to codling moths and moths of the European corn borer, has been assigned to army duty in the Ordnance Department at the Rock Island Arsenal, Rock Island, Illinois. Professor Hienton has been connected with the Officers Reserve for a number of years and holds the rank of Captain.

PEST CONTROL ASSOCIATION CONVENTION

The annual convention of the National Pest Control Association Inc., is to be held in San Francisco, California on October 27, 28 and 29. Headquarters of the Association will be in the St. Francis Hotel. The convention will be the ninth annual meeting of the Association.

Quarantine Order No. 16 of the State of Washington, pertaining to the downy mildew of hops, was revoked on June 18, 1941.

THE IMPERIAL INSTITUTE OF ENTOMOLOGY

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DEAR DR. CORY,

I am afraid there has been some delay in acknowledging your kind letter of the 4th March in which you let us know that you had been so kind as to replace Vol. 32 of the "Journal of Economic Entomology," free of charge. This has now reached us safely and this Institute is much in debt to the Association for this generous gift.

We are, naturally, having a little difficulty in issuing the "Review" punctually and up-to-date. This was especially the case last autumn when our printers suffered damage by enemy action, but the situation has since improved so far as we are concerned.

With renewed thanks,

Yours very truly,

S. A. NEAVE
Assistant Director

Effective May 1, 1941, the Virginia quarantines pertaining to the interstate and intrastate movement of host plants of the European corn borer were revised. The current orders place no restrictions on the movement of celery, beans, beets, or rhubarb, formerly under regulation, provide for the entry of corn and similar products under special permit only, and continue to require certification of certain floral plants including cosmos, zinnia, and hollyhock. The regulated area in Virginia is comprised of 13 counties. No change is made from the former quarantine as to the list of States quarantined against.

WHITE-FRINGED BEETLE

The Bureau of Entomology and Plant Quarantine has announced the authorization of further modifications in the treatment requirements for soil and potted plants shipped from the areas regulated under the white-fringed beetle quarantine. Such treatments are specified in BEPQ circulars 486 and 489, both revised March 21, 1941. The treatment requirements for articles restricted under the Japanese beetle quarantine were also modified by the issuance of supplement 4 of circular BEPQ 499 and a third revision of supplement 1 to that circular.

MEXICAN FRUIT FLY

Because of heavy rains which have greatly hindered the harvesting of grapefruit, the Federal quarantine regulations relating to the Mexican fruitfly were modified to extend the harvesting season to the close of May 1941 in the Texas counties of Brooks, Cameron, Hidalgo, and Willacy, provided conditions of infestation do not necessitate an earlier closing, the Chief of Bureau of Entomology and Plant Quarantine announced on April 2, 1941, in a revision of circular BEPQ 512. The harvesting season normally closes in these counties on April 30. The harvesting season for Valencia oranges in these counties was extended last December from April 30 to the close of May for the year 1941.

PARLATORIA SCALE IN ST. LOUIS

Because of infestations of the recently introduced scale, *Parlatoria chinensis* Marlatt, in the city of Saint Louis, the State Entomologist placed a quarantine effective April 18, 1941, on the movement from the Missouri Botanical Garden and certain other sections of the city of woody plants and plant parts unless treated and inspected.

ORIENTAL FRUIT MOTH

The oriental fruit moth quarantines of Nevada and Washington as revised on May 15 and April 28, 1941, respectively, are identical as to the States quarantined against, including Kansas, Missouri, and New Hampshire. Both quarantines carry provisions as to the entry of bare-rooted dormant trees when treated according to specifications of each of these States, and provide that such trees may be treated during the dormant period and subsequently held in officially approved storage before shipping. The Washington quarantine further provides that limited quantities of budwood and scions may enter under special permit.

CITRUS WHITEFLY

The State of California, in a revision of the quarantine regulation (No. 8) pertaining to citrus whitefly infestations in that State, announces the complete eradication of the pest from area in Los Angeles and Sacramento Counties.

POTATO TUBER MOTH

The Colorado quarantine pertaining to the potato tuber moth, affecting interstate and intrastate shipments, was revised effective April 10, 1941, to add a provision that the quarantine will have no effect upon interstate shipments moving through the State or held at Colorado points awaiting diversion, provided that such shipments are kept intact and are not unloaded. A subsequent revision of April 25 clarified certain sections of the quarantine.

REVISION OF THE FRUIT AND VEGETABLE QUARANTINE OF PUERTO RICO

A revision of the Fruit and Vegetable Quarantine of Puerto Rico, Quarantine No. 58, and its regulations, effective January 22, 1941, modifies considerably the restrictions on the interstate movement of fruits and vegetables from Puerto Rico.

The now considerable accumulation of information on the life history, behavior, and host relations of the so-called West Indian fruitfly, formerly named *Anastrepha fraterculus* (Wied.) but now regarded as comprising at least two distinct species. *A. suspensa* (Loew) and *A. mombinpraeoptans* Sein, has resulted in a more accurate estimate of the role of these species as fruit pests, and has thus provided a sound basis for certain modifications in the restrictions on the movement of various host fruits, particularly citrus, shipped commercially from the Island. Although grove and dock inspection are still provided for in the quarantine, shipment of citrus from any part of the Island may now be made without certification through Baltimore and all ports north thereof, unless inspection reveals infestation conditions which would necessitate return to certification procedure. All citrus shipped to other ports is still required to be certified.

A similar accumulation of information built up over many years regarding the pest conditions in Puerto Rican vegetables has shown that a considerable number of these products as packed and shipped are unlikely to introduce injurious insects to the mainland. For this reason advantage has been taken of the present revision to remove the certification requirement from a list comprising almost all vegetable products shipped commercially from the Island. Certification is still required however, for peppers, green corn on the corb, and string, faba, and lima beans and pigeon peas in the pod, and these in common with other fruit and vegetable products are still subject to inspection to keep a satisfactory check on their cleanliness, freedom from soil, and freedom from pests.

Certain fruitfly hosts still remain in the prohibited lists. Outstanding among these are the guava and roseapple, favored hosts of *A. suspensa*, and the mango and jobo in which *A. mombinpraeoptans* frequently occurs; none of these or any of the considerable list of other native wild host fruits is of particular commercial importance.

A revision of the Kansas quarantine pertaining to the European corn borer, which became effective on May 13, 1941, extended the regulated area to include the States of Delaware, Illinois, Maryland, Virginia, and Wisconsin.

Mr. E. R. Willis, graduate assistant in Zoology and Entomology at Ohio State University from 1939 to 1941 and previous to that time located at Louisiana State University, is now in military camp at Camp Shelby, Mississippi. Mr. Willis holds a commission as a lieutenant in the 166th Infantry, 37th Division and is attached to Company M.

Announcement has been made under date of August 15, 1941, of the appointment of Dr. P. N. Annand as Chief of the Bureau of Entomology and Plant Quarantine of the U. S. Department of Agriculture. The editor takes the liberty of extending to Dr. Annand the congratulations of the JOURNAL and of the American Association of Economic Entomologists.